Preliminary

Façade Characterization Report

Remediation and Deconstruction of

Fiterman Hall, 30 West Broadway,
New York, New York

Prepared for:

Dormitory Authority of the State of New York
&
The City University of New York

Prepared By:

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1.0 INTRODUCTION

Airtek Environmental Corporation (Airtek) has been retained by Pei Cobb Freed & Partners, Architects, LLP (PCFP) on behalf of the Dormitory Authority of the State of New York (DASNY) and The City University of New York (CUNY) to conduct an environmental characterization study of the Fiterman Hall Building located at 30 West Broadway, New York, NY (Fiterman Hall, the Building, or 30 West Broadway). The Building is a 15-story, 370,000 (SF) classroom building owned by CUNY and operated prior to 9/11 by CUNY/Borough of Manhattan Community College. For purposes of the environmental decontamination and deconstruction of Fiterman Hall, DASNY is acting as and for the Building owner. The building was physically damaged by the collapse of 7 World Trade Center, and impacted by the environmental effects of the entire World Trade Center Collapse.

This report is focused on the façade of the Building. A characterization report detailing conditions interior to the Building has been prepared under separate cover.

1.1 Purpose and Objectives of the Façade Characterization Study

DASNY/CUNY insists that appropriate environmental safeguards are put in place at 30 West Broadway to protect workers and the public both during the planning stages of the project, and during the abatement and demolition phases. In support of this effort, it is necessary to closely examine both the structure and building components of the Fiterman Hall Building, and the residual impact of the dust disseminated by the collapse of the World Trade Center (WTC).

The primary focus of the instant investigation and report is the suitability of the building façade as a component of the containment system that will allow the safe and controlled abatement and removal of both building components that pre-dated 9/11, and the dust and dust-impacted building components that remain.

Considerations investigated included the following:

Integrity and construction of the façade as it relates to the façade's use as a barrier during abatement

Confirmation of the efficacy of the NYC DEP cleaning of the exterior façade of the building post-9/11

Asbestos-containing building materials potentially existing on and within the façade

Lead-containing or lead-painted components on and within the façade

The potential for WTC Contaminants of Potential Concern (CoPCs) both on and within the façade construction

The physical and environmental state of the "Gash Area," where the building was physically damaged by the collapse of WTC 7

The study findings will assist in determining what measures and protocols may be required in support of the Fiterman Building cleaning and deconstruction plan. In particular, the results of the Study are intended to provide reference information allowing for informed decisions to be made by the project team regarding appropriate cleaning and deconstruction methods. These decisions include the development and implementation of engineering controls to contain the work zone (i.e., to ensure no exposure to the surrounding community during the cleaning and deconstruction) and appropriate methods for the disposal or recycling of materials generated by the cleaning and deconstruction activities. Using the available characterization results, DASNY/CUNY its consultants, and the selected deconstruction contractor can develop and implement appropriate deconstruction protocols and safety precautions for the cleaning and deconstruction process to ensure the health and safety of workers and the residents of the surrounding community.

1.2 Background

Fiterman Hall is a 1950's-era steel and concrete structure that was used as an office building until the early 1990's when the building was converted to use as a classroom building by the Borough of Manhattan Community College (BMCC). A number of renovation and upgrade projects were executed at Fiterman Hall. In the 1990's the ribbon window system was completely replaced with a new, modern window system. In 2000 and 2001 the building underwent a complete interior gut rehabilitation that included extensive asbestos abatement. On September 11, 2001, this renovation was nearly complete, and the building was 50% occupied by BMCC.

The collapse of WTC 7 tore open the façade of Fiterman Hall from the roof down to the basement, filled the southeast corner of the building with debris, and allowed the incursion of WTC dust. The NYC Department of Design and Construction conducted an emergency response clean-out of the building debris that had rained down from WTC 7 into the building, and DASNY conducted a building stabilization project that included shoring of the gash area, the installation of temporary barriers where the façade had been breached, and the netting of the damaged façade.

In 2005, DASNY/CUNY retained a project team headed by Pei Cobb Freed and Partners Architects, LLP to conduct an investigation of the existing building in support of the planning and execution of an abatement and demolition project intended to prepare the 30 West Broadway site for the construction of a brand new educational facility. On July 1 2005, Airtek was granted Variance File No. 05-0919 by the NYS Department of Labor on behalf of DASNY/CUNY for a variance to allow the investigative team access to conduct the required investigation. All site work undertaken in support of this investigation was conducted in strict accordance with terms and conditions of the NYS DOL Variance for the work, and with the site Health & Safety Plan (HASP).

1.3 Information Sources

Information sources drawn upon to support the investigation included the following:

> Existing documentation related to the original 30 West Broadway structure, documentation of the renovation activities conducted by DASNY/CUNY/BMCC, and documentation of the activities undertaken in response to the events of 9/11;

Interviews with personnel familiar with building operations, renovation project details, and post 9/11 response activities;

Close visual inspection and testing of specific materials and components of the façade systems.

2.0 CHARACTERIZATION COMPONENTS

2.1 Documentation Review

Where previously existing documentation of building structure and condition was available, these documents were reviewed for information pertinent to the subject investigation. Documentation reviewed by the investigation team included the following:

- Limited original as-built drawings
- 2000/2001 renovation specs and drawings
- Pre-9/11 ACBM Survey Reports – DASNY Consultants
- Pre-9/11 LBP Survey Reports – DASNY Consultants
- WTC Characterization Report – Cambridge Horizon Consultants

2.2 Interviews – Historical Research

Specific personnel with direct knowledge of building operations, building history, pre 9/11 construction/renovation activities, and post- 9/11 site activity were made available to the investigation team. Personnel made available included:

- BMCC Building Operations Personnel
- DASNY/CUNY Pre-9/11 Construction Management Personnel
- DASNY/CUNY Post 9/11 Response Management Personnel

2.3 Façade Visual Inspection

A floor-by-floor, façade-by-façade inspection was conducted by the investigation team. The inspection team included USEPA Lead Inspectors, NYC Asbestos Investigators, NYS Asbestos Inspectors experienced in pre-demolition building inspection in general, and in WTC response inspection in particular. All site work conducted as a part of this inspection was conducted in strict accordance with the terms and conditions of both the NYS DOL Variance for this work, and the site HASP.

2.4 Asbestos-Containing Building Material Inspection and Testing

An Asbestos Inspection and Material Survey is required to facilitate the proposed deconstruction of the Building and to comply with: (1) the New York City Department of Buildings permitting requirements, and (2) the pre-demolition requirements promulgated by the New York City Department of Environmental

Protection (NYCDEP), Section I-53; the New York State Department of Labor (NYSDOL) Industrial Code, Rule 56: Asbestos Regulation, Title 15, Sections 56-1.4 and 56-1.9(e); and the U.S. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) for asbestos-containing building materials (ACBM). The requirement for an asbestos building survey includes the requirement that the building façade be investigated for ACBMs. The façade ACBM survey was conducted by NYS DOL Certified Asbestos Inspectors.

2.5 Lead-Based Paint Survey

Although recently renovated, Fiterman Hall was built in the 1950's. USEPA Certified Lead Inspectors conducted testing of building components throughout the structure. Testing of building components included the testing of façade components. This effort provided data in support of decisions related to building materials handling, waste characterization and waste management.

2.6 WTC COPC Impact Investigation

Contaminants of Potential Concern:

Following the WTC Event, the U.S. EPA established a committee to evaluate Contaminants of Potential Concern (CoPCs) found in WTC dust. The CoPC Committee of the World Trade Center Indoor Air Task Force Working Group prepared the *World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks* (May 2003), which identified the compounds of concern for Lower Manhattan cleanup efforts. The WTC Dust Characterization for CoPCs, as defined by the U.S. EPA's COPC Committee, are Silica, Polycyclic Aromatic Hydrocarbons (PAHs), Dioxin, Polychlorinated Biphenyls (PCBs), Heavy Metals (Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel, and Zinc), and Mercury.

Surface Impact:

Airtek conducted a thorough visual inspection of the building façade, and conducted interviews with NYC DEP personnel with knowledge of the previous exterior cleaning that was conducted under the NYC DEP exterior cleaning program. As confirmation of the findings of that investigation, Airtek collected samples to determine the CoPC surface concentration at various exterior façade locations.

Interstitial Impact:

A component of the review of existing documentation included a review of drawings for potential communicating openings and interstices that could have been impacted by WTC CoPCs. In addition to the documentation review, confirmatory destructive investigations of the façade, its structure and its components were conducted.

3.0 CHARACTERIZATION FINDINGS

3.1 Documentation Review

Reviews of existing documentation and drawings indicate that the building façade is composed of an exterior brink and masonry fascia that is backed by structural steel and block. The interstitial space between the brick fascia and the steel and block structural backing was filled with sluiced mortar during construction. This detail was confirmed by destructive testing of the interior of the façade.

Communicating openings are limited to entry doors and the loading dock of the ground floor, operable windows on all floors, doors to setback roofs, and mechanical system louvers and vents. Pipe Chases do exist in the façade, but these chases are accessible for cleaning from the interior of the building.

3.2 Interviews – Historical Research

Interviews with facility operations and management personnel familiar with the history of the Building indicate that the entire ribbon window system that rings every floor of the Building was replaced in its entirety in the mid 1990s. Close visual inspection of the condition of the window system supports this assertion. Both masonry opening caulk (rubberized) and glazing material (rubberized) are intact. Interviews with NYC DEP personnel familiar with the NYC DEP Façade Cleaning Program reveal that the Fiterman Hall façade, with the exception of the gash area, was cleaned by a NYS DOL certified asbestos contractor. As noted below, close visual inspection and laboratory testing confirms this assertion. Bulk debris from the collapsed WTC 7 was removed from the gash area of the Building by the NYC DDC during the WTC response of 2001-2002.

3.3 Façade Visual Inspection

A close visual inspection was conducted floor-by-floor by Airtek inspectors. The inspection focused on determining if WTC debris remained on the façade after the building had been cleaned by the NYC DEP, and on the structural integrity of the façade and window system as a potential component of the barrier system to be used to contain contaminants during the abatement of asbestos and CoPCs from the building.

Debris:

The visual inspection revealed no remaining debris on the façade of the upper floors of the building, and very little debris on the façade of the lower floors. Isolated locations where debris remains have been identified for focused cleaning as a part of the abatement phase of the project. These locations include the Gash Area, specified areas of the second floor, and the entire first floor façade. Most areas of the second floor and first floor façade do not exhibit WTC-type debris, but exhibit build-up of background urban dust and road dust from the construction that has occurred in the vicinity. These areas will be targeted for focused cleaning.

Physical Condition of Façade:

With the exception of the Gash Area, the Building façade is in excellent condition. The brick fascia is intact, the newly installed window systems are in excellent condition, and their rubberized caulking and sealing components are intact.

3.4 Asbestos-Containing Building Material Inspection and Testing

Testing confirms that the brick, mortar, sluiced mortar, block and window sealant materials (caulk & glazing) are non-asbestos materials. All other window components are glass and aluminum, and are non-suspect. Asbestos-containing façade materials include the interior vapor barrier that was applied to the original façade, and lintel flashing that exists below the windows between the brick fascia and the façade structural components (Please see Figure F-1 Section View for flashing location). ACBM testing data is included as Attachment B.

3.5 Lead-Based Paint Survey

Testing of façade components indicated that façade materials are not coated with lead-based paint. Testing was conducted by X-Ray Fluorescence (XRF). Destructive testing was conducted to allow access to all façade components. Results of the lead testing conducted are included as Attachment C.

3.6 WTC COPC Impact Inspection

Surface Impact:

As noted above in Section 3.3, close visual inspection of the brick fascia and window systems indicate that with the exception of the gash area, WTC debris does not exist on the façade. Wipe testing confirms that levels of CoPCs detected on the fascia are consistent with, or below levels that would be expected on a 60 year-old urban structure. As an example, the highest level of lead dust detected above the ground floor was 8.18 ug/ft^2. By law, at 39 ug/ft^2 a school classroom floor may be occupied by kindergartners. Similar results were exhibited in sampling for other CoPCs. Metals wipe testing data is included in Attachment A.

Interstitial Impact:

Interstices do not exist within the façade system except for the communicating openings referenced in Section 3.1 above, the interior chases accessible from the interior of the Building, and individual structural blocks which are not compromised. The notable exception, of course, is the gash area, which will be subject to focused cleaning.

4.0 PROJECT-RELATED CONCLUSIONS

4.1 WTC Dust Impact - Exterior Cleaning Requirements

Only the ground floor, portions of the second floor and the gash area must be subject to focused cleaning by a certified abatement contractor. This will be conducted by the Contractor as a part of the Remediation or Deconstruction Phase of the project. This will allow the erection of the project exterior scaffold to be delayed until the scaffold is needed for deconstruction work

4.2 Façade Integrity

With the exception of the gash area, the façade is intact. The façade system was designed and built to be an impermeable barrier, and it has retained these qualities. The window systems are in excellent condition and are a serviceable barrier for use during the abatement. The installation of plywood/plastic critical barriers over the windows is not necessary to carry out the remediation of the Building. The operating awning-window panels can be sealed with caulk and critical barriers for the remediation phase. This, too, will allow the erection of the project exterior scaffold to be delayed until the scaffold is needed for deconstruction work.

4.3 WTC Dust Impact – Façade Components

The exterior of the façade was effectively cleaned by the NYC DEP façade cleaning program. Build-up of urban road dust on the ground floor and isolated pockets of WTC debris will be subject to focused cleaning by the Contractor. The gash area will be cleaned from the slabs themselves. The interior of the façade will be cleaned during the Remediation Phase of the project.

4.4 Asbestos-Containing Building Materials

Asbestos-containing materials exist on and within the façade, but neither of these ACBMs impact the façade's integrity as a contaminant barrier during the Remediation Phase of the project. The interior vapor barrier will be abated during the remediation phase of the project, and the non-friable lintel flashing will be abated during the Deconstruction Phase of the project.

4.5 Lead-Based Paint Components

Façade components are not coated with lead-based paint.

5.0 STANDARDS OF CARE

Airtek's work was performed in a professional manner. Our objective was to perform our work with care, exercising the customary skills and competence of consulting professionals. Conclusions presented in this report are professional opinions based upon visual observations of the site and laboratory results provided for review. These conclusions reflect only the results obtained and analyzed from specific sample locations. The opinions and recommendations presented herein apply to site conditions existing at the time of our observations. Airtek cannot act as insurers, and no expressed or implied representation or warrant is included or intended in our report except that our work was performed within the limits prescribed by our clients, and with the customary thoroughness and competence of our profession at the time and place the services were rendered.

ATTACHMENT A

CoPC Data Comparison and Wipe Sample Results

Metals Reference Levels (See Note 1)

	Air Clearance Level	Surface Level
Antimony	250 ug/m3	400 ug/sq. ft
Barium	250 ug/m3	400 ug/sq. ft
Beryllium	1 ug/m3	1.6 ug/sq. ft
Cadmium	5 ug/m3	8 ug/sq. ft
Chromium	250 ug/m3	400 ug/sq. ft
Copper	500 ug/m3	800 ug/sq. ft
Lead	25 ug/m3	40 ug/sq. ft
Manganese	100 ug/m3	160 ug/sq. ft
Mercury	12.5 ug/m3	20 ug/sq. ft
Nickel	50 ug/m3	80 ug/sq. ft
Zinc	1000 ug/m3	1600 ug/sq. ft

Metals Wipe Samples Taken on 9-29-05
All results measured in ug/sqft

Sample Location	Antimony	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Zinc
Exterior Ground Floor South West	66.4	473	N.D.	3.07	69.5	242	280	480	0.26	67.1	1500
Exterior Ground Floor Steel Beam	17.2	79.8	N.D.	1.58	20.1	58.8	69.7	132	0.08	18.2	374
Exterior Ground Floor West	8.15	29.7	N.D.	N.D.	14	64.9	44.5	123	N.D.	23.4	85.2
Facade Above 5th Floor West Side	0.8	78.7	N.D.	N.D.	3.77	8.36	8.18	3.1	N.D.	3.59	66.4
Facade Above 5th Floor South West Side	0.6	224	N.D.	N.D.	6.7	3.58	2.46	2.28	N.D.	2.76	63.4
Facade Above 5th Floor North West Side	0.9	222	N.D.	N.D.	6.2	17.6	1.8	4.73	N.D.	17.6	128
Facade Above 14th Floor South West Side	1.3	72.9	N.D.	N.D.	2.28	27.5	5.53	4.93	N.D.	12.4	92.5
Facade Above 14th Floor West Side	1.32	181	N.D.	N.D.	5.41	15.2	7.68	6.34	N.D.	8.05	156
Facade Above 14th Floor North West Side	N.D.	542	N.D.	N.D.	15.1	N.D.	4.13	N.D.	N.D.	1.08	N.D.

Note - 1 Air Clearance Levels are levels established by USEPA for work area clearance of WTC area abatement projects
Surface Levels were extrapolated by Airtek from HUD surface clearance guidelines for lead.
Surface Levels are unpublished values used solely as an illustration of relative contaminant loading.
No claim is made regarding relative health impact of contaminants at the listed surface levels.
These levels are not intended to represent surface clearance levels for abatement.

Fiterman Hall Exterior Wipe Sampling - Mercury, Lead, Polychlorinated Biphenyls (PCBs) and Polynuclear Aromatic Hydrocarbons (PAH)

Wipe Samples Taken on 9-29-05
All results measured in ug/sq.ft

Sample Location	Mercury	Method	Lead	Method	PCB	Method	PAH	Method
Exterior Ground Floor (S.W.)	ND	SW846-7471	92.9	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Exterior Ground Floor (S.)	0.45	SW846-7471	11.1	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Exterior Ground Floor (W.)	ND	SW846-7471	3.85	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 5th Floor (W.)	ND	SW846-7471	2.82	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 5th Floor (S.W.)	ND	SW846-7471	10.7	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 5th Floor (N.W.)	ND	SW846-7471	5.4	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 14th Floor (S.W.)	ND	SW846-7471	71.6	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 14th Floor (W.)	ND	SW846-7471	136	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M
Façade Above 14th Floor (N.W.)	ND	SW846-7471	3.6	SW846-3050/6010B	ND	SW846-8082	Note 2	EPA TO-13M

Note 1: The exact location of each sample can be found in the Technical Report.

Note 2: Results Pending

ATTACHMENT B

Data Summary - ACBM Sample Results

TABLE 1
SUMMARY OF BUILDING ENVELOPE INSPECTION RESULTS FOR ASBESTOS
FITERMAN HALL 30 WEST BROADWAY, NEW YORK, NY 10007

PROPOSED WORK	SUSPECT ACM THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE ACM QUANTITY	NOTES/SPECIFIC LOCATION
	Elbow drain insulation of water tower	Non ACM	0 SF	Confirmed by Applied Technology Services Inc. Aug. 1996
	Roof shingle of water tower	Non ACM	0 SF	Confirmed by Applied Technology Services Inc. Aug. 1996
	Louvers of cooling tower	Non ACM	0 SF	Confirmed by Applied Technology Services Inc. Aug. 1996
	Silicone caulk	Non ACM	0 SF	Confirmed by Applied Technology Services Inc. Aug. 1996
	Glazing	Non ACM	0 SF	Confirmed by Applied Technology Services Inc. Aug. 1996
	Spandrel flashing mastic	PACM	28,755 SF	1st-15th Floor
	Flashing mastic on beams	ACM	25 SF	Loading dock entrance
	Black cloth materials on beams	ACM contaminated	25 SF	Loading dock entrance
	Roof materials	Non ACM	0 SF	Elevator machine room roof
	Flashing	Non ACM	0 SF	Elevator machine room roof
	Coping caulk	Non ACM	0 LF	Elevator machine room roof
	Cap flashing	Non ACM	0 SF	Elevator machine room roof
	Screed	Non ACM	0 SF	Elevator machine room roof
	Flashing	Non ACM	0 SF	Fan room roof
	Roof materials	Non ACM	0 SF	Stair roof
	Flashing	Non ACM	0 SF	Stair roof
	Top & Side window caulking	ACM	12 LF	Stair roof
	Window glazing	Non ACM	0 LF	Stair roof
	Screed	Non ACM	0 SF	Stair roof
	Roof materials	Non ACM	0 SF	New elevator mechanical room roof
	Flashing	Non ACM	0 SF	New elevator mechanical room roof
	Coping stone caulk	Non ACM	0 LF	New elevator mechanical room roof
	Top & Side window caulking	ACM	12 LF	New elevator mechanical room roof
	Screed	Non ACM	0 SF	New elevator mechanical room roof
	Roof materials	Non ACM	0 SF	15th Floor roof
	Flashing	Non ACM	0 SF	15th Floor roof
	Flashing	Non ACM	0 SF	14th Floor roof
	Roof membrane	ACM	6,950 SF	14th Floor roof
	Screed	Non ACM	0 SF	14th Floor roof
	Roof membrane under screed	Non ACM	0 SF	14th Floor roof
	Flashing	Non ACM	0 SF	5th Floor roof
	Roof membrane	Non ACM	0 SF	5th Floor roof
	Screed	Non ACM	0 SF	5th Floor roof
	Brick wall mortar	Non ACM	0 SF	6th & 15th Floor

PROPOSED WORK	SUSPECT ACM THAT MAY BE AFFECTED	LAB RESULTS	APPROXIMATE ACM QUANTITY	NOTES/SPECIFIC LOCATION
	Expansion joint caulking	Non ACM	0 SF	6th & 15th Floor
	Marble mortar & sealant	Non ACM	0 SF	1st Floor exterior of the building
	Marble caulking	Non ACM	0 SF	1st Floor exterior of the building
	Window frame caulking	ACM	3,000 LF	1st Floor exterior of the building
	Column caulking	Non ACM	0 SF	1st Floor exterior of the building
	Column mortar	Non ACM	0 SF	1st Floor exterior of the building
Total Approximate Quantity of ACM			**35,755 SF 3,024 LF**	

ATTACHMENT C

Data Summary - LBP Sample Results

Fiterman Hall Exterior Lead-Based Paint Testing Results

No	Time	COMPONENT	COLOR	SIDE	SUBSTRATE	SPACE	FL #	ROOM	Results	DI	PbC	PbC Error
202	11/11/2005 12:07	Wall	WHITE	WEST	BRICK	SETBACK ROOF	6	Roof	Negative	1	0.01	0.03
203	11/11/2005 12:08	Wall	WHITE	NORTH	BRICK	SETBACK ROOF	6	Roof	Negative	1	0	0.02
219	11/11/2005 12:21	Wall	BEIGE	RC S.W.CORNER	PLASTER	Exterior	8	Exterior	Negative	1	0.01	0.02
220	11/11/2005 12:22	Column	BEIGE	RC S.W.CORNER	PLASTER	Exterior	8	Exterior	Null	2.47	0.08	0.27
221	11/11/2005 12:22	Column	BEIGE	RC S.W.CORNER	PLASTER	Exterior	8	Exterior	Null	1.46	0.04	0.08
222	11/11/2005 12:22	Column	BEIGE	RC S.W.CORNER	PLASTER	Exterior	8	Exterior	Negative	4.13	0.13	0.2
223	11/11/2005 12:22	Column	GRAY	RC S.W.CORNER	STEEL	Exterior	8	Exterior	Negative	1	0	0.02